

ABSTRACT
COMPENSATING FOR POLARISATION MODE DISPERSION IN OPTICAL
TRANSMISSION FIBRES

5 Compensating for polarisation mode dispersion in a birefringent optical trans-
mission fibre is achieved by controlling the birefringence of the fibre. The dif-
ference in group velocity of the orthogonal polarisation states of an optical
signal transmitted over the fibre is monitored to generate an error signal repre-
senting the difference. The birefringence of the fibre is adjusted accordingly
10 to minimise the difference and thereby provide dynamic compensation. Bire-
fringence control may be achieved by a non-linear fibre grating written into
the fibre to impose a differential time delay. The fibre may be a side hole fibre
(SHF), a holey fibre (HF), a photonic crystal fibre (PCF), or any other suitable
microstructure fibre. The fibre may have stressing rods, may be tapered along
15 its length and may be controlled electrically, mechanically, acoustically or
thermally by spaced heating elements.